

Appl. No. 10/773,796
Amendment after Final dated March 15, 2006
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 1762

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1.-2. (Canceled).
3. (Previously Presented) A method for depositing a coating comprising a continuous tetrahedral amorphous carbon on a substrate, the method comprising:
ionizing a source material so as to form a plasma containing ions which comprise carbon; and
energizing the ions to form a stream having a substantially uniform impact energy and uniform weight from the plasma straight toward the substrate so that carbon from the ions is deposited on the substrate and which promotes formation of more than 15% sp³ carbon-carbon bonds.
4. (Previously Presented) A method as in claim 3, wherein the carbon is deposited on the substrate at a rate higher than 10 Å per second.
5. (Original) A method as in claim 3, wherein the source material comprises acetylene.
6. (Canceled).
7. (Previously Presented) A method for enhancing formation of an ion beam that provides carbon deposition over a substrate, the ion beam produced by inductively ionizing an acetylene plasma within a plasma volume and capacitatively coupling the plasma so as to form a stream of ions from within the plasma volume, the method comprising:

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moving a magnetic field through the plasma volume to promote even resonant inductive ionization and homogenize the ion beam which deposits carbon over the substrate, wherein the magnetic field rotates with a frequency of less than 10,000 Hz.

8. (Previously Presented) A method as claimed in claim 7, wherein moving the magnetic field comprises selectively energizing magnetic coils disposed about the plasma volume.

9. (Previously Presented) A method as claimed in claim 7, wherein the magnetic field rotates through the plasma volume with a frequency which is much less than the frequency of an alternating induction potential within the plasma volume.

10. (Previously Presented) A method as claimed in claim 7, wherein the magnetic field is transverse and rotates about an axis which is substantially normal to a capacitatively coupled extraction grid within the plasma volume.

11. (Previously Presented) A method as claimed in claim 7, wherein the magnetic field rotates with a frequency of less than 100 Hz.

12.-15. (Canceled).

16. (Previously Presented) A method as in claim 3, wherein the ion impact energy is in a range between 100 eV and 120 eV for each carbon atom.

17. (Previously Presented) A method as in claim 4, wherein the carbon is deposited on the substrate at a rate in a range from 30 Å per second to 100 Å per second.

18. (Previously Presented) A method as in claim 7, wherein the carbon is deposited on the substrate at a rate in a range from 20 Å per second to 100 Å per second.

19. (Previously Presented) A method as in claim 3, wherein the substrate includes a magnetic recording medium.

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20. (Previously Presented) A method as in claim 3, wherein the substrate includes a semiconductor material.

21. (Previously Presented) A method as in claim 7, wherein the substrate includes a magnetic recording medium.

22. (Previously Presented) A method as in claim 7, wherein the substrate includes a semiconductor material.